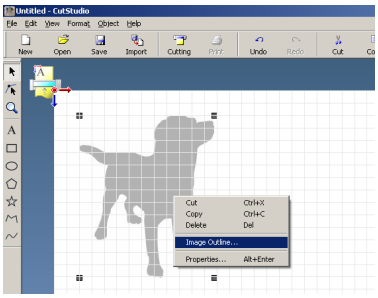
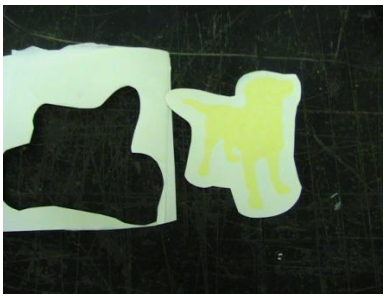
Vinyl Cutter / Sticker

Project Instruction Booklet





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Project Overview

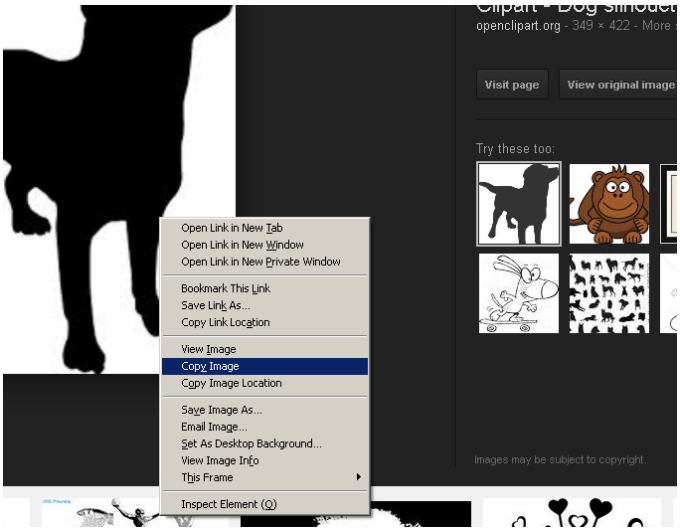
In this project students will learn how to use the following tools and shop materials to create a vinyl transfer (sticker): vinyl cutter, vinyl adhesive, small vinyl weeding tools, transfer tape, vinyl squeegee. In addition, students will learn the importance of shop cleanliness and safety procedures.

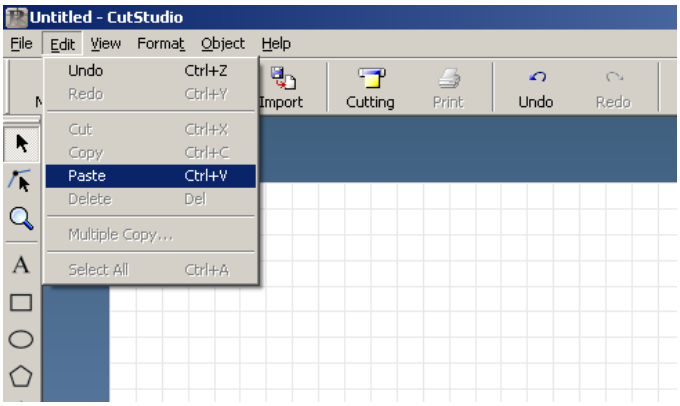
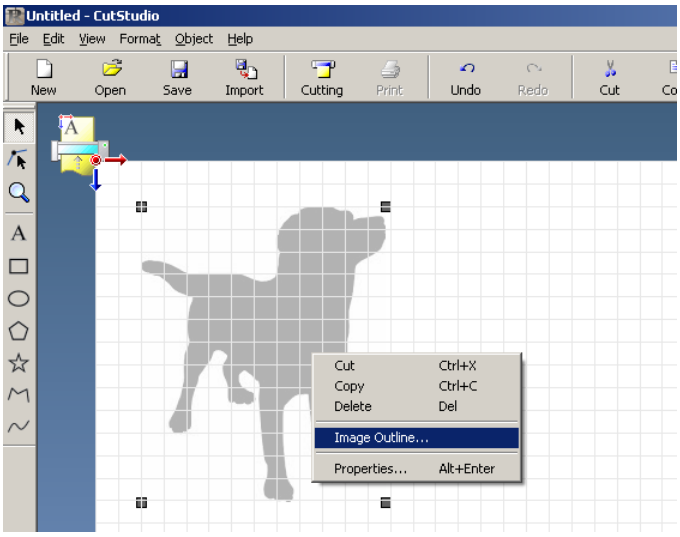
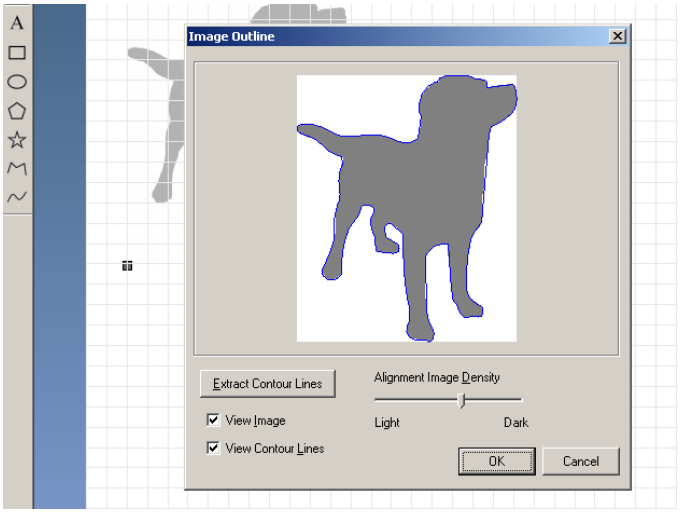
Introduction to Preparing an Image for the Vinyl Cutter

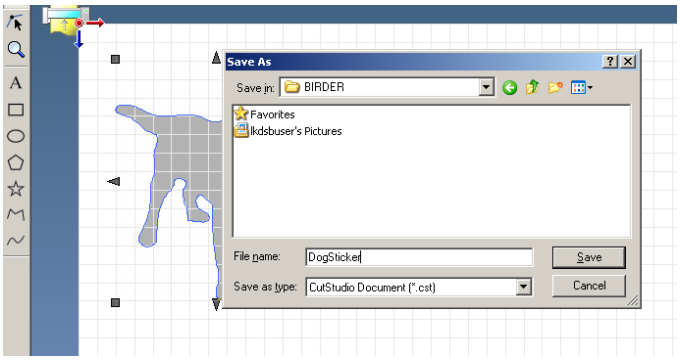
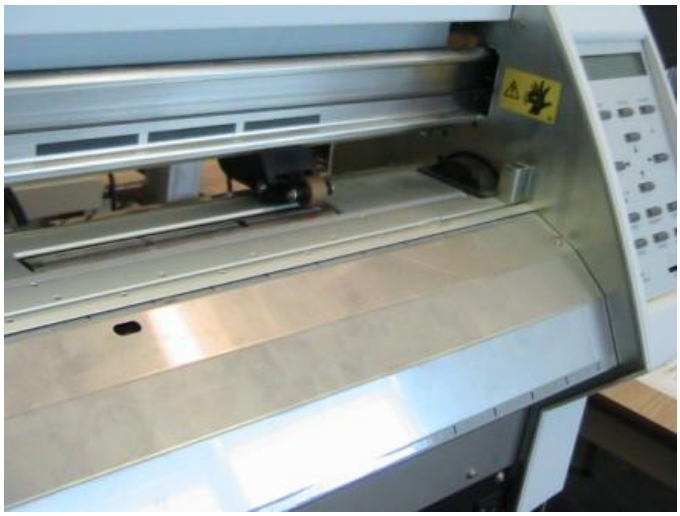
Make sure the design is a single colour and will work for the purpose of cutting out a sticker. Here are some examples of what will and will not work:

Image				
Will It Work?	**No**	**Maybe**	**No**	**Yes**
Why?	Greyscale photos turn into blobs of black, and no longer looks like the original image.	Colour drawings might cut well as a silhouette, but often no longer look like the original image.	Thin lines turn out to be a mess of mangled cuts.	Black and white drawing silhouettes work the best because they are only one colour and have less detail.
Resulting Sticker				

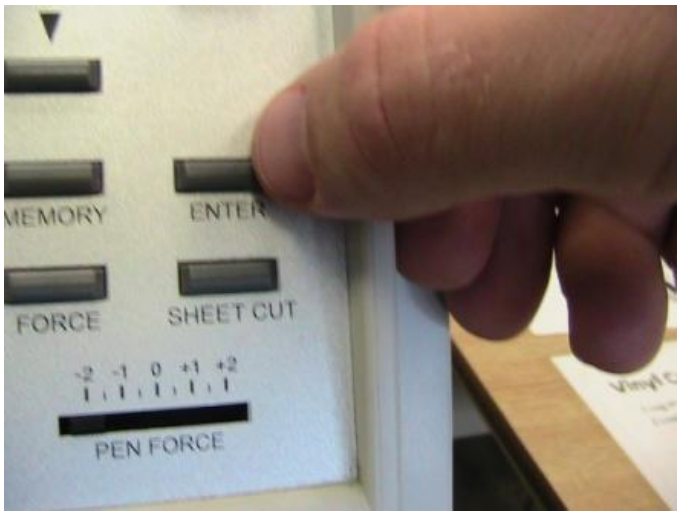
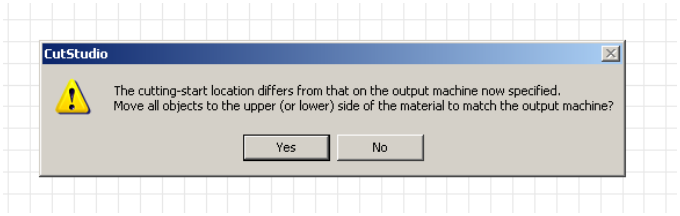
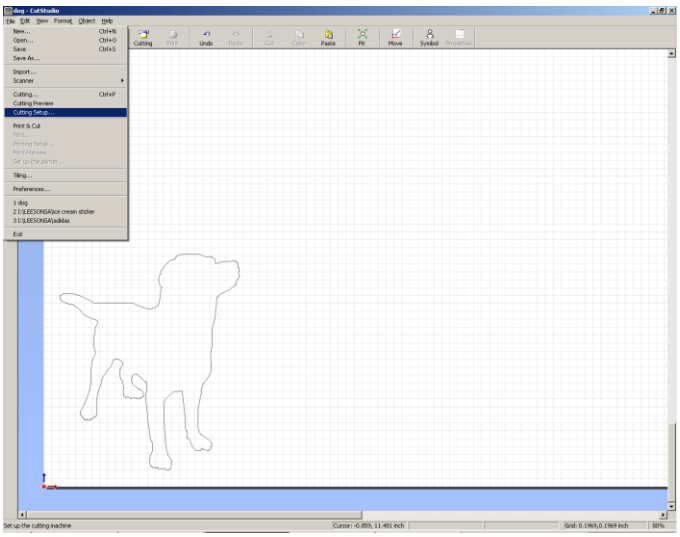
Step-By-Step Instructions

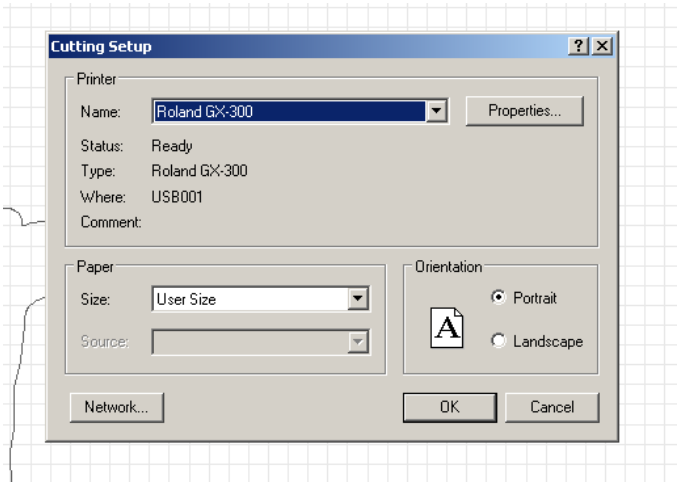
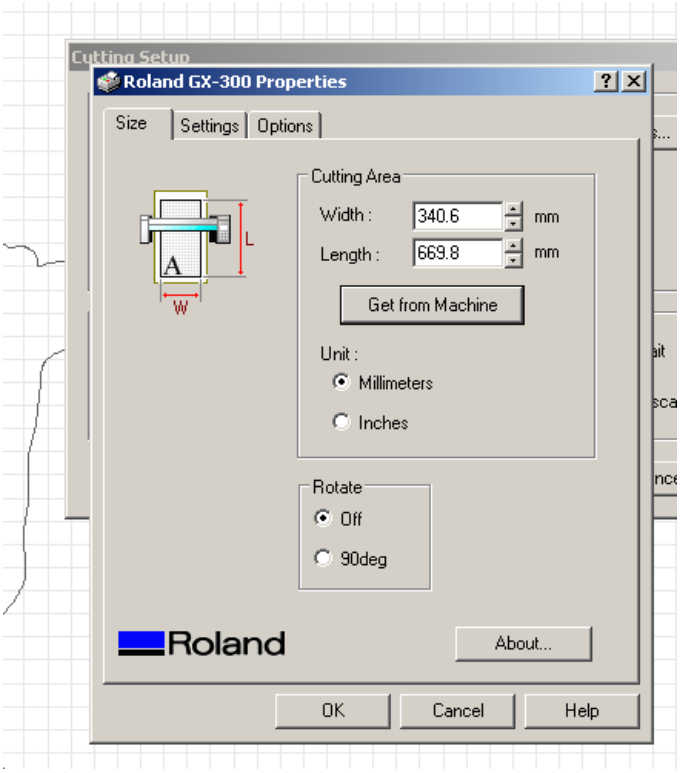
1.	Find an image on the internet, or design an original drawing own using graphic editing software like “Corel Draw” or “Corel PhotoPaint” or “Adobe PhotoShop.” **Tip:** A search for “black and white clipart silhouette” will turn up several useful images on the internet. **Tip:** To successfully include words, be sure there are only one or two words, and that the letters are large.	
2.	Copy the image.	

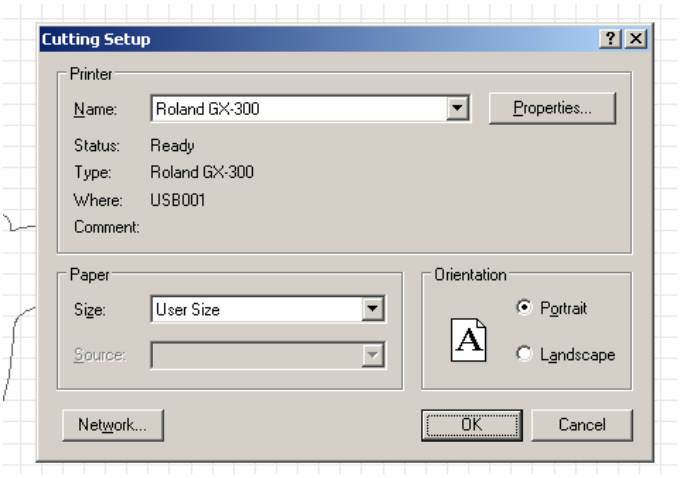
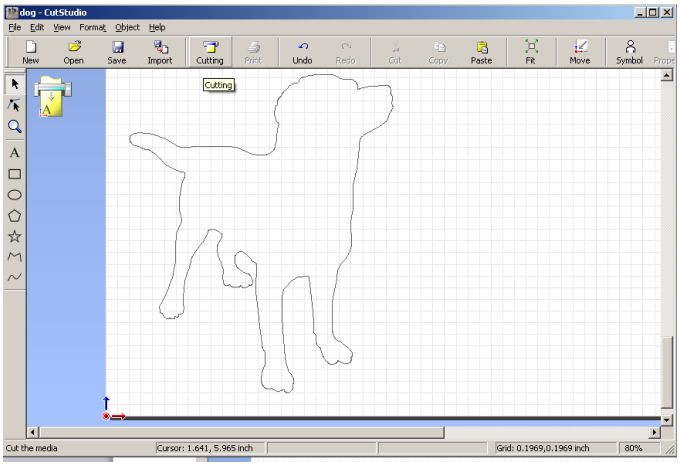
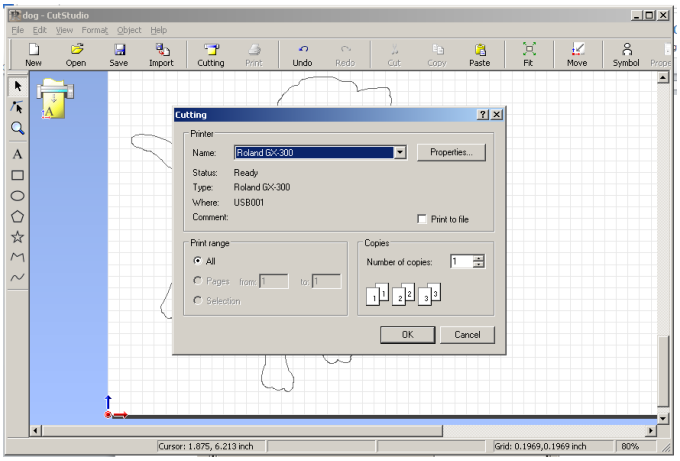
3.	Paste the image into CutStudio using the “Edit” → “Paste” feature, or by pressing CTRL-V on the keyboard.	
4.	In CutStudio, right-click on the image and select “Image Outline.”	
5.	Click the “Extract Contour Lines” button. This will put blue lines around the shape to be cut out on the Vinyl Cutter. Then click the “OK” button.	

6.	Save the CutStudio document to the H:\ drive and give it a meaningful name. Do this by clicking “File” -> “Save As”, being sure to select the H:\ drive, typing a descriptive name in the “File name” box, and then clicking the “Save” button.	
7.	When the Vinyl Cutter is available, and with the permission of the instructor, take a piece or a roll of vinyl to the Vinyl Cutter.	
8.	Load the vinyl material into the vinyl cutter, and adjust the Movable Pinch Rollers using the Sheet Loading Levers on the back of the machine. **Tip:** Squeeze the back of the levers together to adjust their position.	Adjustable Locked

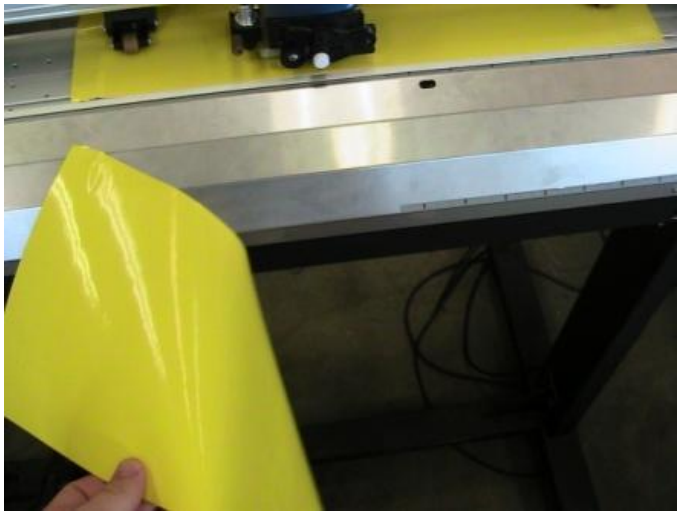
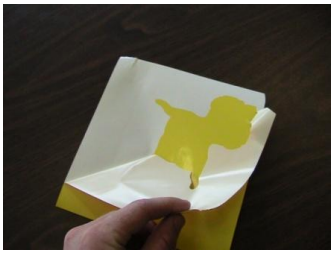
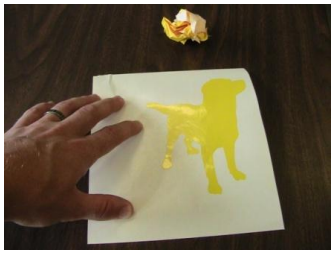
9.	Be sure that: a) the Sheet Loading Levers are completely within the grey Grit marks indicated on the front (top) of the machine, and that the rollers are locked in place; b) the vinyl material will cover the Sheet Sensor on the front (bottom) of the machine.	
10.	Select either “Roll” or “Piece” on the Operation Panel using the down arrow cursor.	

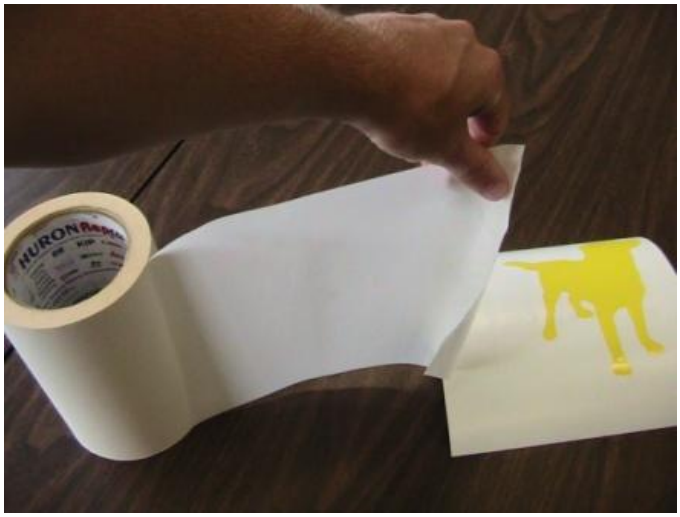
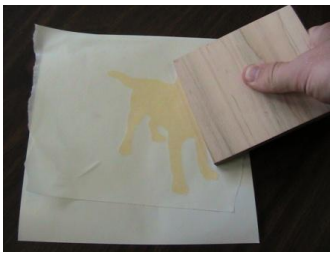
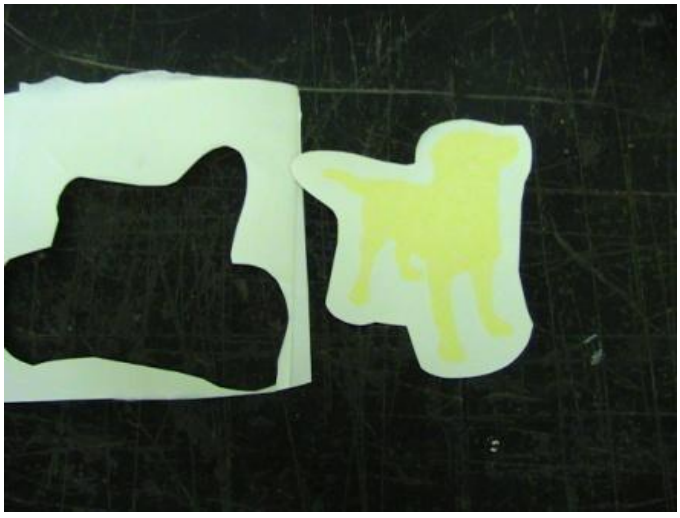
11.	Click the “Enter” key on the Operation Panel. This will measure the material and display the dimensions on the panel’s display. **Tip:** If the message “Bad Position” shows on the control panel display, check the position of the rollers.	
12.	Open the sticker design file in CutStudio on the computer next to the Vinyl Cutter. **Tip:** If a message box pops up, select “Yes.”	
13.	In CutStudio, select “File” → “Cutting Setup” from the menu bar.	

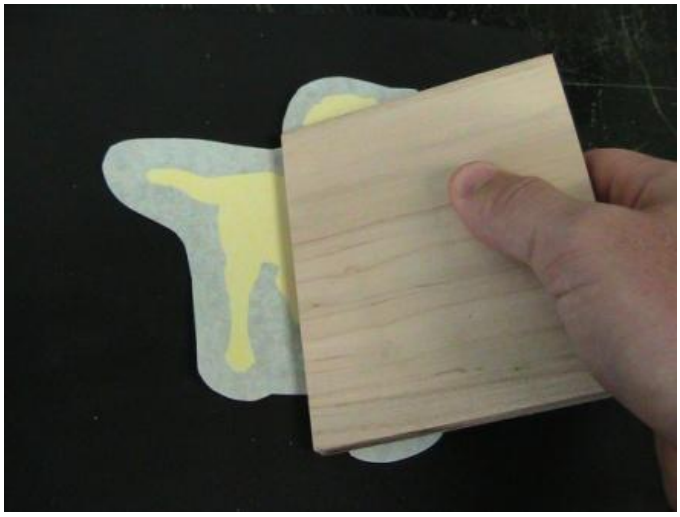
14.	Ensure “Roland GX-300” is selected as the current printer, and click the “Properties” button.	
15.	Click the “Get from Machine” button. This will bring the dimensions of the material loaded in the Vinyl Cutter to CutStudio. Click the “OK” button.	

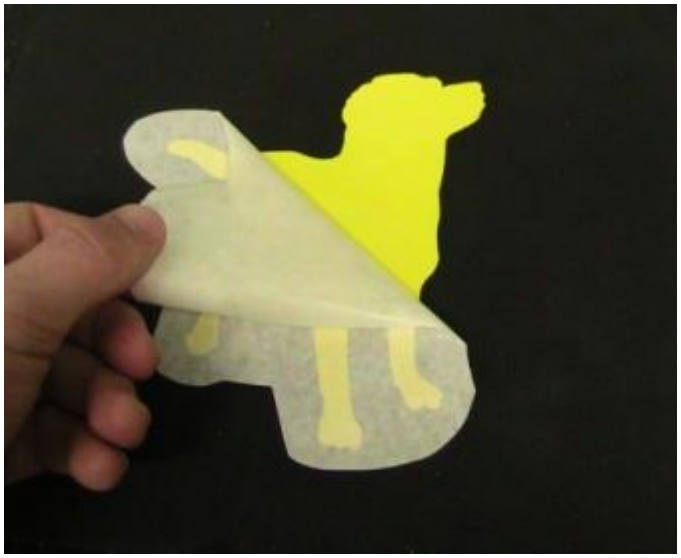
16.	Click the OK button on this screen too.	
17.	Click the “Cutting” button to cut out the sticker. Another way to do this is to click “File” → “Cutting”.	
18.	Ensure the “Roalnd GX-300” printer is selected, and click the “OK” button.	

19.	The project will cut on the Vinyl Cutter. **Safety Tip:** Keep all fingers, hair, clothing, jewelry, and anything else away from the machine while it is cutting. The tool carriage and blade can move very quickly.	
20.	When completed, push the down arrow cursor on the Operation Panel until the finished sticker moves completely clear of the tool carriage.	
21.	Push and hold the “Sheet Cut” button on the console. This cuts a straight line across the piece of material using the Separating Knife.	

22.	After the material has been cut, remove it from the Vinyl Cutter.	
23.	Peel away the unwanted vinyl from the sticker shape. This is called "weeding." **Tip:** Some weeding tools may be required for finer details or thin pieces.	 
24.	Throw any excess weeded material into the waste bucket.	

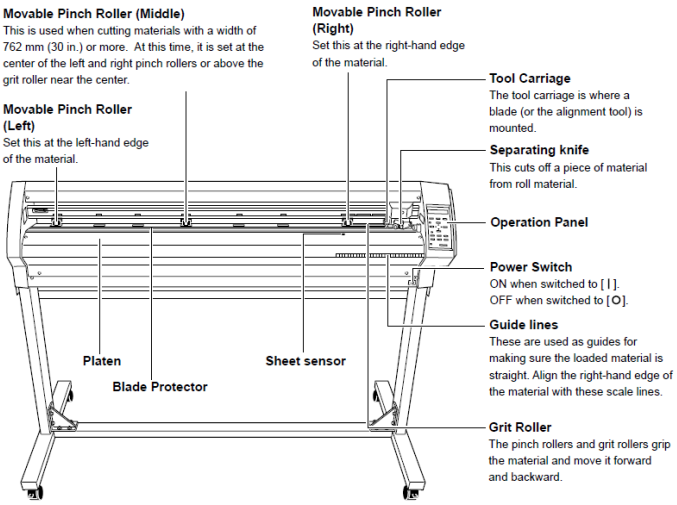
25.	Cut an appropriate sized amount of transfer tape for the sticker. **Tip:** If the sticker is large, more than one piece of transfer tape may be required to completely cover the sticker.	
26.	Apply the transfer tape to the sticker, and use a vinyl squeegee or straight edge to ensure it has no wrinkles or air bubbles **Tip:** The transfer tape should be firmly attached to the sticker, but may not stick well to the smooth backing.	
27.	Cut out the sticker with the transfer tape on it.	

28.	Peel the entire sticker off of the smooth backing. **Tip:** All shapes should remain in place, stuck to the transfer tape.	
29.	Before applying the sticker, clean the surface with mild dish soap and water and allowing the surface to dry.	
30.	Apply the finished sticker to its final intended surface. **Tip:** Use the squeegee or a flat edge to ensure there are no air bubbles or wrinkles in the sticker.	

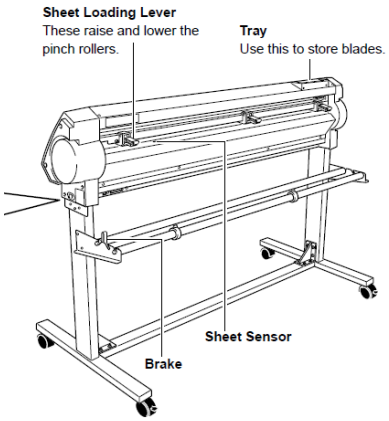
31.	Peel off the transfer tape.	
32.	The sticker is made of semi-permanent vinyl adhesive, and if applied properly is designed to lasts indoors or outdoors for several years.	

Note: the user manual for the Roland GX-300 can be found at:
http://support.rolanddga.com/docs/Documents/departments/Technical%20Services/Manuals%20and%20Guides/GX-500_USE_EN_R4.pdf

Vinyl Cutter: Front View

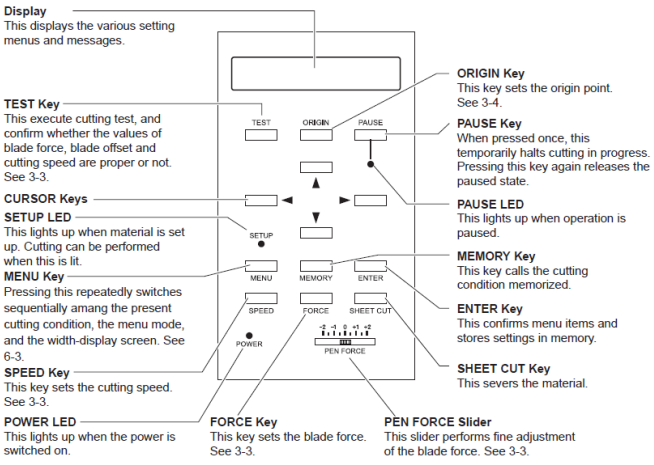

Movable Pinch Roller (Middle)
This is used when cutting materials with a width of 762 mm (30 in.) or more. At this time, it is set at the center of the left and right pinch rollers or above the grit roller near the center.
Movable Pinch Roller (Left)
Set this at the left-hand edge of the material.
Movable Pinch Roller (Right)
Set this at the right-hand edge of the material.
Tool Carriage
The tool carriage is where a blade (or the alignment tool) is mounted.
Separating knife
This cuts off a piece of material from roll material.
Operation Panel
Power Switch
ON when switched to [|].
OFF when switched to [O].
Guide lines
These are used as guides for making sure the loaded material is straight. Align the right-hand edge of the material with these scale lines.
Platen
Blade Protector
Sheet sensor
Grit Roller
The pinch rollers and grit rollers grip the material and move it forward and backward.

Vinyl Cutter: Rear View



2-3 Operation Panel

For more information about the keys, see the respective reference sections and "6-3 List of Functions."


Display
This displays the various setting menus and messages.
TEST Key
This execute cutting test, and confirm whether the values of blade force, blade offset and cutting speed are proper or not. See 3-3.
CURSOR Keys
SETUP LED
This lights up when material is set up. Cutting can be performed when this is lit.
MENU Key
Pressing this repeatedly switches sequentially amang the present cutting condition, the menu mode, and the width-display screen. See 6-3.
SPEED Key
This key sets the cutting speed. See 3-3.
POWER LED
This lights up when the power is switched on.
FORCE Key
This key sets the blade force. See 3-3.
PEN FORCE Slider
This slider performs fine adjustment of the blade force. See 3-3.
ORIGIN Key
This key sets the origin point. See 3-4.
PAUSE Key
When pressed once, this temporarily halts cutting in progress. Pressing this key again releases the paused state.
PAUSE LED
This lights up when operation is paused.
MEMORY Key
This key calls the cutting condition memorized.
ENTER Key
This confirms menu items and stores settings in memory.
SHEET CUT Key
This severs the material.
TEST
ORIGIN
PAUSE
SETUP
MENU
MEMORY
ENTER
SPEED
FORCE
SHEET CUT
POWER
PEN FORCE